Diastase in Honey: The Schade Method

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Limited collaborative study of the Schade method for determination of diastase in honey indicates need for further examination of the procedure. Because diastase determination is used in quality control of export honey, the 1963 collaborative samples were analyzed by the Institut für Honigforschung, Bremen, Germany, by their version of the Schade method. Slightly lower values were obtained.

[1] Eastern Utilization Research and Development Division, Agricultural Research Service, U.S. Department of Agriculture.

Table 1. Determination of diastase in honey, 1962

Sample	Coll. A	Coll. B
1	52, 48[a]	46.2
2	12, 12	11.9
3	20, 20	19.0
4	18, 18	16.1
5	14, 14	15.2
6	33, 33	30.6
7	15, 14	13.9

[a] ml 1% starch/g honey (g starch/100 g honey converted per hour at 40°C).

As recommended by Subcommittee D, the first action method for diastase in honey, **29.127–29.130**, has been submitted to collaborative study. Only one collaborator outside this laboratory was obtained.

Honey samples were stored under refrigeration between sampling and analysis. Samples were analyzed in 1962 and 1963, but the 1962 values were not received in time for a report that year.

Results for 1962 are shown in Table 1. Agreement was considered fairly good in this very limited test.

In 1963, additional samples were analyzed by the same collaborators and also by the Associate Referee. Agreement is about the same as in the previous year (Table 2). The causes of the differences are not known; Analysts 1 and 2 are in the same laboratory.

Since an important use of the diastase determination in honey is in quality control of export honey, consideration should be given to agreement of values between laboratories in the United States and Europe. The seven 1963 samples were analyzed for diastase and other components by the Institut für Honigforschung at Bremen, Germany, using their version of the Schade method. Their procedure differs (1) from the original method of Schade, *et al.* (2) and the first action AOAC procedure (3) as shown in Table 3. Duisberg and Gebelein have noted (4) that the precision of the Schade procedure appears to diminish at values above 29. A previous interlaboratory comparison with the Bremen laboratory has been published (5). The results obtained for the 1963 samples at the Institut appear separately in Table 4, since the slightly different procedure may affect the result. It will be noted that the agreement is generally better for the lower values.

The data presented here as well as unpublished experiments indicate the advisability of further study of the photometric determination of diastase in honey, especially linearity at higher values, and a recommendation is so made.

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Table 2. Determination of diastase in honey, 1963

Sample	Coll. 1	Coll. 2	Coll. 3
A	39.6	45.0	48, 48
B	11.7	11.5	11, 11
C	18.8	18.1	17, 18
D	41.7	43.6	42, 44
E	13.3	13.9	13, 12
F	30.0	32.6	29, 29
G	16.0	16.8	17, 16

Table 3. Comparison of photometric diastase procedures

		Modifications	
	Original Schade, *et al.* (2)	AOAC (3)	Duisberg (1)
Cuvette	Klett test tube	1 cm	1 cm
Blank absorbance	1.70–1.80[a]	0.76	1.10 (8% T)
End point	0.30 (50% T)	0.235	0.30 (50% T)

[a] Equivalent to Klett 850–900.

Table 4. Diastase content of 1963 honey samples[a]

No.	Value[b]	No.	Value[b]
A	36.5	E	10.9
B	12.1	F	27.0
C	17.9	G	15.9
D	34.9		

[a] Analyzed at the Institut für Honigforschung, Bremen, Germany.
[b] Average of 3–5 determinations.

This paper was presented as the report of the Associate Referee at the Seventy-seventh Annual Meeting of the Association of Official Agricultural Chemists, Oct. 14–17, 1963, at Washington, D.C.

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The recommendation of the Associate Referee was approved by the General Referee and by Subcommittee D and accepted by the Association. See *This Journal,* **47**, 132 (1964).